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EXAMINER

PAYER, HWEI SIU CHOU

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 29

Application Number: 09/160,991  
Filing Date: September 25, 1998  
Appellant(s): CHERNG ET AL.

Kristi L. Davidson  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12-9-2002.

(1) Real Party In Interest.

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences.

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims.

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments.

No amendment after final has been filed.

(5) Summary of Invention.

The summary of invention contained in the brief is correct.

(6) Statement of Issues.

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims.

The rejection of claims 1-22, 24-27 and 29-31 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed.

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art Relied Upon.

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

3,952,179	Baker	04-1976
5,417,132	Cox et al.	05-1995
5,580,472	Maybon	12-1996

(10) Grounds of Rejection.

1. Claims 1-7, 10, 12-14, 16-22, 24, 27 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Maybon (U.S. Patent No. 5,580,472).

Baker discloses a method for forming a cutting die (see Abstract) comprising the steps of cladding a blade material (12) onto a surface (see Fig.3) of a rotatable (see column 5, lines 10-11) cylindrical die body (10) of a material different and less harder than the blade material (see column 1, lines 48-58) to form a blade in a pattern including intersecting portions (24,25, see column 4, lines 65-67) extending outwardly from the die surface (see Fig.6); and shaping the clad blade by electrical discharge machining (EDM), milling or grinding (see column 1, lines 61-65 and column 3, lines 50-

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61) substantially as claimed except Baker is silent about the heat source used for cladding.

Maybon teaches the use of a laser beam (28) as a heat source for cladding. Specifically, Maybon teaches cladding a hard material onto a steel substrate (8) by heating an area (32) of the steel substrate (8) with a laser beam (28) and introducing a cladding powder (comprising tungsten carbide, nickel, etc., see column 4, lines 55-60) onto the heated area (see column 6, lines 16-18) while heating the area (32) to form a layer of deposit that is compositionally different and of greater hardness than the steel substrate (8). The cladding can be done with one single pass of the laser beam or a number of successive passes depending upon the thickness of the deposit desired (see column 6, lines 31-37). The cladding powder is fed through a feeder that is coaxial with a beam of the laser (see column 5, lines 63-65).

It would have been obvious to one skilled in the art to modify Baker by using a well known heat source such as Maybon's laser beam for cladding a hard material of a powder form onto the substrate (10) for the advantage of a very fine microstructure and homogeneity of the clad layer as taught by Maybon.

Claims 10 and 12 each recite the hardness of the die body and of the cladding powder, and a percentage of the tungsten carbide presented in the cladding powder, respectively.

The claimed hardness and the percentage of tungsten carbide in the cladding powder are not patentably distinct over Baker as modified, since the blade material and

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the die body material selected depends more upon the blade performance criteria and the die body parameters (as evidenced by Appellant's specification on page 15) than on any inventive concept.

2. Claims 8, 9, 11, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) and Maybon (U.S. Patent No. 5,580,472) as applied to claims 1, 10, 13 and 22 above, and further in view of Cox et al. (U.S. Patent No. 5,417,132).

Baker as modified above shows the claimed method steps of forming a cutting die except it lacks the step of heat/cryogenic treating the blade.

Cox et al. teach heat and cryogenic treating blades after the blades are shaped.

It would have been obvious to one skilled in the art to further modify Baker by providing a heat/cryogenic step after the blade is shaped to harden and prolong the life of the blades as taught by Cox et al.

#### (11) Response to Argument.

Appellant argues, at pages 9 and 10 of the brief, Baker uses known welding technology to produce hard blades on a relatively soft die body. Welding techniques first form a molten metal, then deposit globs or beads of the molten metal onto the die body using high, uncontrolled, unfocused heat. The welding technique is incapable of producing near net shapes, and extensive machining must be used to define the cutting blades.

Appellant's argument is incorrect. First of all, Baker is completely silent about the particular type of welding technique used. Further, Baker does not mention using high, uncontrolled and unfocused heat as Appellant alleges. Secondly, Baker's cladded hard material is in the form of a bead (12, see Fig.3) that is same as Appellant's cladded bead (14, see Fig.3). Appellant's cladded bead also requires machining (see Fig.4 and claims 1, 5, 6, 7, 13, 16, 17, 18, 20, 21, 22 and 21) to remove excessive material from the cladded bead to form the final shape of the cutting blade as that of Baker's.

Appellant argues, at pages 10 -12 of the brief, Maybon does not relate to the cutting die industry, but rather relate to hardfacing or resurfacing only the tops of ridges on a paper pulp defibering or refining plate. Maybon does not teach forming the entire ridge topography by laser cladding.

The issue before the Board is not whether Maybon teaches forming an entire blade on a die body from different material than the body but rather whether the combination of Maybon and Baker would have suggested to one having ordinary skill in the art to combine a well known heat source such as Maybon's laser beam for cladding Baker's hard material onto a less harder body substrate. The test for combining references is what the references as a whole would have suggested to one of ordinary skill in the art. In re Sheckler, 168 USPQ 716 (CCPA 1971); In re McLaughlin, 170 USPQ 209 (CCPA 1971); In re Young, 159 USPQ 725 (CCPA 1968). Non-obviousness

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cannot be shown by attacking references individually where the rejections are based on a combination of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merk & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant further argues, at page 13 of the brief, if one modifies Baker by applying the teaching of Maybon, as a whole, one only gets a tubular die with a bottom portion of the blade cast with the tubular die body, and a tip portion of the blade resurfaced with harder material.

In response to Appellant's argument, it has been held that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference..... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art. In re keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review. In re Sneed, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983). Combining the teachings of references does not involve an ability to combine their specific structures. In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973).

In short, the main concept of cladding a harder material onto a softer base material to form a blade on the base material in order to prolong the life of the cutting tool while reducing the cost is clearly disclosed in the primary reference to Baker. Maybon is merely used as a teaching reference to show that it is well known in the art to



clad a harder material onto a softer material by use of a laser beam as a heat source for cladding a powder material.

Appellant states, at pages 16-17 of the brief, the declarations of Mr. Harrison and Mr. Bell both discussed the increase die life that has been experienced in their plants through use of the cutting dies of the present invention. Appellant argues that the evidence of superior results, commercial success and long felt but unsolved need was effectively ignored by the Examiner without a careful analysis of its relevancy. Appellant is incorrect.

In response to Appellant's argument, the declarations are insufficient to rebut a finding of obviousness for the following reasons:

First of all, the declarations of Mr. Harrison and Mr. Bell fail to demonstrate that unexpected results or properties are due to the use of the particular heat source (i.e. a laser beam). The declarations also fail to compare the closest prior art (i.e. the Bake reference) relies upon and the claimed invention under identical conditions except for the novel features of the invention. In re Brown, 173 USPQ 685; In re Chapman, 148 USPQ 711.

Secondly, the declarations have not established there was a commercial success because no competitive figures for sales for the entire market are given. The declarations also fail to establish the nexus between the commercial success and the inventive feature (i.e. the use of a laser beam as a heat source) and fail to show the

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commercial success alleged is not due to other factors such as sale promotions, advertising, etc. Moreover, there are no comparisons with similar competitive cutting dies with respect to their commercial success and factors or lack thereof influencing their sale such as sale promotions, advertising, etc. The commercial success might be well due to features found in the prior art (e.g. cladding a harder material onto a softer base material to form a blade on the base material in order to prolong the life of the cutting tool while reducing the cost).

(12) Conclusion.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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January 21, 2003

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